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Bleeding reduction in cardiac surgery: A combined approach

To the Editor:

We read with interest the article by Hayashida and colleagues[1] concerning the effects of minimal-dose aprotinin on coronary bypass. Looking for new strategies to reduce bleeding during heart surgery, we have conducted a prospective, randomized, double-blind trial of topical aprotinin versus placebo in 100 patients undergoing cardiac operations with systemic aprotinin in the pump prime.

Fifty patients received topical aprotinin plus systemic aprotinin (group A), and 50 patients received only systemic aprotinin and placebo into the pericardial cavity (group B). All the patients underwent coronary artery bypass grafting. The trial started in January 1997 and ended in December 1997. Aprotinin (50 ml; 500,000 KIU) in group A or placebo (50 ml) in group B was applied topically to the heart, pericardium, and mediastinal structures for 5 minutes before sternal closure. All patients had general aprotinin in the pump prime (100 ml; 1,000,000 KIU). The same surgeon (F.B.) was involved in all cardiac operations. The groups were homogeneous for extracorporeal circulation time, number of anastomoses, and hemocoagulative parameters. Four patients required reentry for bleeding, with a surgical site identified in only one patient in group B. These patients were eliminated from analysis of the difference in blood loss. Mean blood loss was significantly less in the topical aprotinin group (247 vs 427 ml; $p = 0.001$), and fewer patients required transfusions (7 vs 14, respectively).

In accordance with the experience of the Oxford group,[2] we tried to reduce bleeding by using aprotinin molecules acting from "inside" and historically from "outside." Much more information we need about the long-term effects and influence on pericardial and mediastinal structures,[3] but these preliminary results show that the addition of aprotinin to the extracorporeal circuit and topical application should reduce the need for blood products, reducing the risks to the patient and the costs to the health service.

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